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10/502,045	01/10/2005	Atsushi Kudo	255291US90PCT	2143

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1797	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/502,045	KUDO ET AL.	
	Examiner	Art Unit	
	Natasha Young	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,10-1216,20,22-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,10-12,16,20 and 22-46* is/are rejected.

7)☒ Claim(s) *2,10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 2 and 10 are objected to because of the following informalities: The word "bock" (line 3 of the claims) should be "block". Appropriate correction is required.

Claims 1, 3-4, and 16 are objected to because of the following informalities: The word "combing" should be "combining" (line 14 of claim 1, line 13 of claim 3, line 14 of claim 4, and line 13 of claim 16). Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6, 10-12, 16, 20, and 22-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naruse et al (US 5,914,187) in view of Ito et al (EP 0 361 883 A1).

Regarding claim 1, Naruse et al teaches a honeycomb filter for purifying exhaust gases (see column 10, lines 16-23), comprising: a plurality of columnar porous ceramic members having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive layer comb[in]ing said columnar porous ceramic members with one another (see Abstract and figures 1 and 2).

Naruse et al does not teach said adhesive layer has a thermal expansion coefficient α_L, said columnar porous ceramic members have a thermal expansion coefficient α_F, and said thermal expansion coefficient α_L of said adhesive layer and said

thermal expansion coefficient α_F of said columnar porous ceramic members satisfy a relationship, $0.01 < \left|\frac{\alpha_L - \alpha_F}{\alpha_F}\right| < 1.0$.

Ito et al teaches said adhesive layer has a thermal expansion coefficient α_L, said columnar porous ceramic members have a thermal expansion coefficient α_F, and said thermal expansion coefficient α_L of said adhesive layer and said thermal expansion coefficient α_F of said columnar porous ceramic members satisfy a relationship, $0.01 < \left|\frac{\alpha_L - \alpha_F}{\alpha_F}\right| < 1.0$ (see Abstract and table 1).

Ito et al does not teach the honeycomb structure used as a filter or the use of organic binder.

Ito et al teaches the use of carbon powder and resin beads, which may be organic or inorganic (see page 3, lines 18-20).

Naruse et al teaches the honeycomb structures used as a heat exchangers (see column 10, lines 16-23) and the organic only contributes 0.1-5.0 wt% (see column 4, lines 27-30) which would not contribute a large amount to the thermal coefficient of the adhesive.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claims 20 and 22 depend on claim 1 such that the reasoning used to reject claim 1 will be used to reject the dependent portions of the claims.

Regarding claim 20, Naruse et al teaches a catalyst supported in at least one of said columnar porous ceramic members (see column 8, lines 35-39).

Regarding claim 22, Naruse et al does not teach said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores.

Ito et al teaches said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores (see page 3, lines 18-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 23 depends on claim 22 such that the reasoning used to reject claim 22 will be used to reject the dependent portions of the claim.

Regarding claim 23, Naruse et al does not teach said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al teaches said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Regarding claim 2, Naruse et al teaches a honeycomb filter for purifying exhaust gases (see column 10, lines 16-23) comprising: a ceramic block comprising at least one columnar porous ceramic member, said columnar porous ceramic member having a partition wall and a plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic member, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic member including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic members such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side (see Abstract and figures 1 and 2).

Naruse et al does not teach a coating layer formed on a circumferential face of said ceramic block wherein said coating layer has a thermal expansion coefficient α_M, said columnar porous ceramic member has a thermal expansion coefficient α_F, and said thermal expansion coefficient α_M of coating material layer and said thermal expansion coefficient α_F of said columnar porous ceramic member satisfy a relations,

$$0.01 < \left| \frac{\alpha_M - \alpha_F}{\alpha_F} \right| < 1.0 .$$

Ito et al teaches a coating layer formed on a circumferential face of said ceramic block wherein said coating layer has a thermal expansion coefficient α_M, said columnar porous ceramic member has a thermal expansion coefficient α_F, and said thermal expansion coefficient α_M of coating material layer and said thermal expansion coefficient

α_F of said columnar porous ceramic member satisfy a relations, $0.01 < \left|\frac{\alpha_M - \alpha_F}{\alpha_F}\right| < 1.0$

(see Abstract, table 1, and page 3, lines 26-32 where the bonding material is used as a coating).

Ito et al does not teach the honeycomb structure used as a filter or the use of organic binder.

Ito et al teaches the use of carbon powder and resin beads, which may be organic or inorganic (see page 3, lines 18-20).

Naruse et al teaches the honeycomb structures used as a heat exchangers (see column 10, lines 16-23) and the organic only contributes 0.1-5.0 wt% (see column 4, lines 27-30) which would not contribution a large amount to the thermal coefficient of the adhesive.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 24 depends on claim 2 such that the reasoning used to reject claim 2 will be used to reject the dependent portions of the claim.

Regarding claim 24, Naruse et al does not teach said coating layer comprises a coating comprising a material that is capable of forming independent pores.

Ito et al teaches said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores (see page 3, lines 18-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 25 depends on claim 24 such that the reasoning used to reject claim 24 will be used to reject the dependent portions of the claim.

Regarding claim 25, Naruse et al does not teach said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al teaches said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 26 depends on claim 2 such that the reasoning used to reject claim 2 will be used to reject the dependent portions of the claim.

Regarding claim 26, Naruse et al teaches a catalyst supported in ceramic block (see column 8, lines 35-39).

Regarding claim 3, Naruse et al teaches a honeycomb filter for purifying exhaust gases (see column 10, lines 16-23), comprising: a ceramic block comprising at least

one columnar porous ceramic member, said columnar porous ceramic member having a partition wall and a plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic member, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic member including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic members such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive laying comb[in]ing said columnar porous ceramic members with one another (see Abstract and figures 1 and 2).

Naruse et al does not teach a coating layer formed on a circumferential face of said ceramic block wherein said adhesive layer has a thermal expansion coefficient α_L, said columnar porous ceramic members have a thermal expansion coefficient α_F, and said thermal expansion coefficient α_L of said adhesive layer and said thermal expansion coefficient α_F of said columnar porous ceramic members satisfy a relationship, $0.01 < \left|\frac{\alpha_L - \alpha_F}{\alpha_F}\right| < 1.0$, said coating layer has a thermal expansion coefficient α_M, said columnar porous ceramic member has a thermal expansion coefficient α_F, and said thermal expansion coefficient α_M of coating material layer and said thermal expansion coefficient α_F of said columnar porous ceramic member satisfy a relations, $0.01 < \left|\frac{\alpha_M - \alpha_F}{\alpha_F}\right| < 1.0$.

Ito et al teaches a coating layer formed on a circumferential face of said ceramic block wherein said adhesive layer has a thermal expansion coefficient α_L, said columnar porous ceramic members have a thermal expansion coefficient α_F, and said thermal expansion coefficient α_L of said adhesive layer and said thermal expansion coefficient α_F of said columnar porous ceramic members satisfy a relationship, $0.01 < \left|\frac{\alpha_L - \alpha_F}{\alpha_F}\right| < 1.0$, said coating layer has a thermal expansion coefficient α_M, said columnar porous ceramic member has a thermal expansion coefficient α_F, and said thermal expansion coefficient α_M of coating material layer and said thermal expansion coefficient α_F of said columnar porous ceramic member satisfy a relations, $0.01 < \left|\frac{\alpha_M - \alpha_F}{\alpha_F}\right| < 1.0$ (see Abstract, table 1, and page 3, lines 26-32 where the bonding material is used as a coating).

Ito et al does not teach the honeycomb structure used as a filter or the use of organic binder.

Ito et al teaches the use of carbon powder and resin beads, which may be organic or inorganic (see page 3, lines 18-20).

Naruse et al teaches the honeycomb structures used as a heat exchangers (see column 10, lines 16-23) and the organic only contributes 0.1-5.0 wt% (see column 4, lines 27-30) which would not contribution a large amount to the thermal coefficient of the adhesive.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et

al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 27 depends on claim 3 such that the reasoning used to reject claim 3 will be used to reject the dependent portions of the claim.

Regarding claim 27, Naruse et al does not teach said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores.

Ito et al teaches said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores (see page 3, lines 18-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 28 depends on claim 27 such that the reasoning used to reject claim 27 will be used to reject the dependent portions of the claim.

Regarding claim 28, Naruse et al does not teach said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al teaches said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et

al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 29 depends on claim 3 such that the reasoning used to reject claim 3 will be used to reject the dependent portions of the claim.

Regarding claim 29, Naruse et al does not teach said coating layer comprises a coating comprising a material that is capable of forming independent pores.

Ito et al teaches said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores (see page 3, lines 18-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 30 depends on claim 29 such that the reasoning used to reject claim 29 will be used to reject the dependent portions of the claim.

Regarding claim 30, Naruse et al does not teach said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al teaches said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et

al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 31 depends on claim 3 such that the reasoning used to reject claim 3 will be used to reject the dependent portions of the claim.

Regarding claim 31, Naruse et al teaches a catalyst supported in ceramic block (see column 8, lines 35-39).

Regarding claim 4, Naruse et al teaches a honeycomb filter for purifying exhaust gases (see column 10, lines 16-23), comprising: a plurality of columnar porous ceramic members having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive layer comb[in]ing said columnar porous ceramic members with one another (see Abstract and figures 1 and 2).

Naruse et al does not teach the adhesive has thermal capacity per unit volume that is lower than a thermal capacity per unit volume of the porous ceramic member.

Because the materials of the adhesive and the plurality of columnar porous ceramic members taught in Naruse et al are also taught in the claimed invention, Naruse et al also teaches the limitation of the adhesive layer having a thermal capacity

per unit volume that is lower than the thermal capacity per unit volume of the porous ceramic members.

Claims 5-6 and 32 depend on claim 4 such that the reasoning used to reject claim 4 will be used to reject the dependent portions of the claims.

Regarding claim 5, Naruse et al does not teach the thermal capacity per unit volume of the adhesive layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members.

Because the materials of the adhesive and the plurality of columnar porous ceramic members taught in Naruse et al are also taught in the claimed invention, Naruse et al also teaches the limitation of the adhesive layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 6, Naruse et al does not teach the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Because the materials of the adhesive and the plurality of columnar porous ceramic members taught in Naruse et al are also taught in the claimed invention, Naruse et al also teaches the limitation of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 32, Naruse et al does not teach said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores.

Ito et al teaches said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores (see page 3, lines 18-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 33 depends on claim 32 such that the reasoning used to reject claim 32 will be used to reject the dependent portions of the claim.

Regarding claim 33, Naruse et al does not teach said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al teaches said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 34 depends on claim 4 such that the reasoning used to reject claim 4 will be used to reject the dependent portions of the claim.

Regarding claim 34, Naruse et al teaches a catalyst supported in at least one of said columnar porous ceramic members (see column 8, lines 35-39).

Regarding claim 10, Naruse et al teaches a honeycomb filter for purifying exhaust gases (see column 10, lines 16-23), comprising: a ceramic block comprising at

least one columnar porous ceramic member having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side (see Abstract and figures 1 and 2).

Naruse et al does not teach a coating material layer formed on a circumferential face of said ceramic block wherein the coating material layer has a thermal capacity per unit volume that is lower than a thermal capacity per unit volume of the porous ceramic member.

Ito et al teaches coating material layer (see page 3, lines 26-32).

Ito et al does not teach the honeycomb structure used as a filter or the use of organic binder.

Ito et al teaches the use of carbon powder and resin beads, which may be organic or inorganic (see page 3, lines 18-20).

Naruse et al teaches the honeycomb structures used as a heat exchangers (see column 10, lines 16-23) and the organic only contributes 0.1-5.0 wt% (see column 4, lines 27-30) which would not contribution a large amount to the thermal coefficient of the adhesive.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Because the combined teachings of Naruse et al and Ito et al teach the materials of the coating material layer and the ceramic block of the claimed invention, Naruse et al and Ito et al also teach the limitation of the coating material layer having a thermal capacity per unit volume that is lower than the thermal capacity per unit volume of the porous ceramic members.

Claims 11-12 and 35 depend on claim 4 such that the reasoning used to reject claim 4 will be used to reject the dependent portions of the claims.

Regarding claim 11, Naruse et al does not teach the thermal capacity per unit volume of the coating material layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members.

Because the combined teachings of Naruse et al and Ito et al teach the materials of the coating material layer and the ceramic block of the claimed invention, Naruse et al and Ito et al also teach the limitation of the coating material layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 12, Naruse et al does not teach the thermal capacity per unit volume of the coating material layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Because the combined teachings of Naruse et al and Ito et al teach the materials of the coating material layer and the ceramic block of the claimed invention, Naruse et al and Ito et al also teach the limitation of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 35, Naruse et al does not teach said coating layer comprises a coating comprising a material that is capable of forming independent pores.

Ito et al teaches said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores (see page 3, lines 18-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 36 depends on claim 35 such that the reasoning used to reject claim 35 will be used to reject the dependent portions of the claim.

Regarding claim 36, Naruse et al does not teach said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al teaches said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et

al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 37 depends on claim 10 such that the reasoning used to reject claim 10 will be used to reject the dependent portions of the claim.

Regarding claim 37, Naruse et al teaches a catalyst supported in ceramic block (see column 8, lines 35-39).

Regarding claim 16 Naruse et al teaches a honeycomb filter for purifying exhaust gases (see column 10, lines 16-23), comprising: a ceramic block comprising a plurality of columnar porous ceramic members having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive layer comb[in]ing said columnar porous ceramic members with one another (see Abstract and figures 1 and 2).

Naruse et al does not teach a coating material layer formed on a circumferential face of said ceramic clock, wherein the adhesive layer has a thermal capacity per unit volume that is lower than a thermal capacity per unit volume of the columnar porous ceramic members, and the coating material layer has a thermal capacity per unit

volume that is lower than the thermal capacity per unit volume of the columnar porous ceramic members

Ito et al teaches coating material layer (see page 3, lines 26-32).

Ito et al does not teach the honeycomb structure used as a filter or the use of organic binder.

Ito et al teaches the use of carbon powder and resin beads, which may be organic or inorganic (see page 3, lines 18-20).

Naruse et al teaches the honeycomb structures used as a heat exchangers (see column 10, lines 16-23) and the organic only contributes 0.1-5.0 wt% (see column 4, lines 27-30) which would not contribution a large amount to the thermal coefficient of the adhesive.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Because the combined teachings of Naruse et al and Ito et al teach the materials of the coating material layer and the ceramic block of the claimed invention, Naruse et al and Ito et al also teach the limitations of the adhesive layer having a thermal capacity per unit volume that is lower than the thermal capacity per unit volume of the porous ceramic members and the coating material layer having a thermal capacity per unit volume that is lower than the thermal capacity per unit volume of the porous ceramic members.

Claims 38-40 depend on claim 16 such that the reasoning used to reject claim 16 will be used to reject the dependent portions of the claims.

Regarding claim 38, Naruse et al does not teach the thermal capacity per unit volume of the adhesive layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members.

Because the materials of the adhesive and the plurality of columnar porous ceramic members taught in Naruse et al are also taught in the claimed invention, Naruse et al also teaches the limitation of the adhesive layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 39, Naruse et al does not teach the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Because the materials of the adhesive and the plurality of columnar porous ceramic members taught in Naruse et al are also taught in the claimed invention, Naruse et al also teaches the limitation of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 40, Naruse et al does not teach said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores.

Ito et al teaches said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores (see page 3, lines 18-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et

al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 41 depends on claim 40 such that the reasoning used to reject claim 40 will be used to reject the dependent portions of the claim.

Regarding claim 41, Naruse et al does not teach said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al teaches said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claims 42-44 depend on claim 16 such that the reasoning used to reject claim 16 will be used to reject the dependent portions of the claims.

Regarding claim 42, Naruse et al does not teach the thermal capacity per unit volume of the coating material layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members.

Because the combined teachings of Naruse et al and Ito et al teach the materials of the coating material layer and the ceramic block of the claimed invention, Naruse et

al and Ito et al also teach the limitation of the coating material layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 43, Naruse et al does not teach the thermal capacity per unit volume of the coating material layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Because the combined teachings of Naruse et al and Ito et al teach the materials of the coating material layer and the ceramic block of the claimed invention, Naruse et al and Ito et al also teach the limitation of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 44, Naruse et al does not teach said coating layer comprises a coating comprising a material that is capable of forming independent pores.

Ito et al teaches said adhesive layer comprises an adhesive comprising a material that is capable of forming independent pores (see page 3, lines 18-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 45 depends on claim 44 such that the reasoning used to reject claim 44 will be used to reject the dependent portions of the claim.

Regarding claim 45, Naruse et al does not teach said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al teaches said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 46 depends on claim 16 such that the reasoning used to reject claim 16 will be used to reject the dependent portions of the claim.

Regarding claim 37, Naruse et al teaches a catalyst supported in ceramic block (see column 8, lines 35-39).

Response to Arguments

Applicant's arguments filed September 10, 2007 (see page 16, line 14 through page 18, line 14) have been fully considered but they are not persuasive.

Regarding the first argument directed toward the obviousness rejections based on combinations of a honeycomb structure used as a filter and a honeycomb structure used as a heat exchanger. This rejection stands because the limitations of the structure are met. It is obvious to one having ordinary skill in the art at the time the invention was made to know that the combined teachings of Naruse et al and Ito et al would have the same capabilities of the claimed invention. Also, Naruse et al teaches the use of the honeycomb structure as a heat exchanger (see column 10, lines 16-23).

Regarding the second argument that neither Naruse et al or Ito et al teaches the limitation of "said partition wall which separates said through holes function as a filter for collecting particulates wherein the relationship between a thermal expansion coefficient α_L of said adhesive layer and a thermal expansion coefficient α_F of said ceramic member is as follows: $0.01 < \left|\frac{\alpha_L - \alpha_F}{\alpha_F}\right| < 1.0$" is met since the limitations of the structure are me. It is obvious to one having ordinary skill in the art at the time the invention was made to know that the combined teachings of Naruse et al and Ito et al would have the same capabilities of the claimed invention.

Regarding the third argument examiner does not believe claims 3, 10, and 16 are patentably distinguishable from Naruse et al and Ito et al.

Regarding the fourth argument directed to claims 22-25 Ito et al teaches the limitation of the adhesive and coating layers comprising a material capable of forming independent pore and consisting of a foaming agent, inorganic balloons and organic balloons (see Ito et al page 3, lines 18-19 and 26-32).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natasha Young whose telephone number is 571-270-3163. The examiner can normally be reached on Mon-Thurs 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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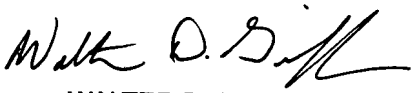

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